# Humanitarian Assistance/Disaster Relief Tools, Maps and Models

ONR Program Code 34

November 2010

## At a Glance

**What is it?**

- The Humanitarian Assistance/Disaster Relief (HA/DR) Tools, Maps and Models Program investigates novel modes of data collection (e.g., crowd sourcing), modeling, smart maps and information tools for humanitarian assistance and crisis relief operations.

**How does it work?**

- Data collection methods provide rapid assessments of humanitarian assistance and disaster relief needs. These tools, smart maps and techniques for information visualization can be shared with the public and other governments and nongovernment organizations to improve collaboration and enhance human security. Through "look ahead" models, these tools assist in developing improved interventions in crisis, improving civil affairs and humanitarian operations abroad and at home.

**What will it accomplish?**

- This program will create next-generation information management systems in modular forms for HA/DR; enable the creation of multilayered smart maps and mash-ups that can leverage and display information from models; incorporate the outputs for relevant HA/DR models; develop systems of trust management to enable all parties to work together while preserving their own information security; and improve humanitarian assistance/disaster relief logistics across the services and the agencies.

**Point of Contact**

Dr. Rebecca Goolsby

rebecca.goolsby@navy.mil

From Hurricane Katrina to the 2010 Haitian earthquake, the U.S. military has seen an ever-increasing role as broker, coordinator and first responder to a variety of disasters at home and abroad. The HA/DR program combines social science, computational modeling and social network analysis to develop new techniques, models and tools for improving the execution of humanitarian assistance, civil affairs, human security, reconstruction and disaster relief operations.

The HA/DR program involves the development of new capabilities that can assist the military in their homeland mission as well as abroad by developing the following tools and capabilities:

- Tools and techniques to improve situational awareness with the public, local authorities, first responders, nongovernment agencies and other governments
- Ability to manage information security across the spectrum—from unclassified to more sensitive—in new systems of trust management that emerge from social network management
- Mobile instruments and new techniques for safely and ethically collecting field data together with tools to maintain high standards of information privacy
- Mechanisms for data mining social media in a high-tempo, rapid-onset, massive disaster capable of generating thousands of "tweets" per hour for first responder purposes and needs
- Multilayered maps with shareable and secure layers designed to keep sensitive information secure while allowing broader distribution of less sensitive information to appropriate partners
- Improved means to enable first responders to collaborate using inputs from the public via crisis maps and other social media inputs
- Incorporation of model inputs to assist first responders, nongovernment and government organizations to get ahead of the curve in determining what health and human security needs will look like in the future and create a more proactive mission planning stance

### Research Challenges and Opportunities:

- Development of new models, maps, tools and information mash-ups for HA/DR mission planning and execution that are shareable, secure and easy to use—and relevant to the needs of many kinds of participants
- Development of systems of trust management that meet the needs of all participants, from the military to the nongovernment organizations
- Data mining and visualization of massive sets of streaming data, such as an earthquake in Tokyo, in other languages